

CLAIMS

WE CLAIM:

1. A bidirection beam expansion line narrowing unit for a laser defining a laser chamber comprising:
 - A) first direction beam expander positioned to expand a beam from said laser in a first direction;
 - B) a second direction beam expander positioned to expand said beam in a second direction; and
 - C) a grating positioned to reflect a selected narrow band of wavelengths back, via said second direction beam expander and said second direction beam expander, to said laser chamber for amplification.
2. A line narrowing unit as in Claim 1 wherein said first direction is horizontal and said second direction is vertical.
3. A line narrowing unit as in Claim 1 wherein said first direction beam expander is comprised of at least one prism and said second direction beam expander is comprised of at least one prism.
4. A line narrowing unit as in Claim 1 wherein said first direction beam expander is comprised of three prisms and said second direction beam expander is comprised of a single prism.
5. A line narrowing unit as in Claim 1 and further comprising a tuning mirror.

6. A narrow band excimer laser comprising:
- A) a laser chamber comprising
 - 1) two electrodes;
 - 2) an excimer laser gas;
 - 3) a blower means for circulating the gas;
 - 4) a pulse power means for creating discharges between said electrodes to produce excimer laser pulses;
 - B) a resonant cavity comprising an output coupler and a line narrowing unit said line narrowing unit comprising;
 - 1) first direction beam expander positioned to expand a beam from said laser in a first direction;
 - 2) a second direction beam expander positioned to expand said beam in a second direction; and
 - 3) a grating positioned to reflect a selected narrow band of wavelengths back, via said second direction beam expander and said second direction beam expander, to said laser chamber for amplification.

7. A laser as in Claim 1 wherein said first direction is horizontal and said second direction is vertical.

8. A laser as in Claim 1 wherein said first direction beam expander is comprised of at least one prism and said second direction beam expander is comprised of at least one prism.

9. A laser as in Claim 1 wherein said first direction beam expander is comprised of three prisms and said second direction beam expander is comprised of a single prism.

10. A laser as in Claim 1 and further comprising a tuning mirror.